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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,909	02/07/2002	Hideharu Nakajima	112857-317	2300

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EXAMINER

WILLE, DOUGLAS A

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 10/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	10/071,909	NAKAJIMA ET AL.	
	Examiner	Art Unit	
	Douglas A Wille	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thibeault et al in view of Hata et al. and Hayafuji et al.
3. With respect to claims 1 and 5, Thibeault et al. show a LED array (see cover Figure and column 5, line 9 et seq.) with a plurality of light emitting devices 18, 14, 16 on a substrate 28 with an insulating layer 23 in which the LED is embedded and the upper end of the LED is exposed and electrode 24 is attached. Thibeault et al. show the emitting structures as a disc (see Figures) and show that the materials can be GaN (column 1, line 28). Hata et al. show that for GaN, a conventional structure in GaN has cracking problems (column 1, line 65) and that the triangular structure avoids these problems. Note that this structure has an emitting region at a slant. It would have been obvious to use the Hata et al structure in the Thibeault et al. device to avoid the problems. Thibeault et al. do not show thinning of the insulator but this is a processing limitation and carries no weight in a claim drawn to a device and similar remark is addressable to claim 5. Thibeault et al. do not show that the device can be used as a display but Hayafuji et al. show a similar device (see cover Figure and column 4, line 30 et seq.) in which the emitters can be individually addressed (column 6, line 65) and is inherently usable as a display and it would

have been obvious to individually address the Thibeault et al. elements as shown by Hayafuji et al. to provide another use for the array.

4. With respect to claims 2 and 3, Thibeault et al. show the insulation is SiN or SiO₂ (column 6, line 37) but the use of other standard semiconductor industry insulators such as polyimide or spin-on glass would have been obvious.

5. With respect to claim 4, Thibeault et al. show the insulation is SiN or SiO₂ (column 6, line 37) and is deposited by evaporation or sputtering although the method of formation is a process limitation and carries no weight.

6. With respect to claim 6, Hayafuji et al. shows reflector layers 11 and 16 with downward emission (see cover Figure).

7. With respect to claim 7, Hata shows a stripe shaped structure (column 4, line 57) but to form the devices in the Thibeault et al. structure it would be necessary to limit the width of the structure in two dimensions rather than in just one dimension. It would have been obvious to form the Hata et al. structure as a pyramid to form it in the Thibeault et al. device.

8. With respect to claim 8, Hata et al. show the emitting surface as (1,-1,0,1) (column 6, line 67).

9. With respect to claim 9, since the (1,-1,0,1) structure is known to be formed on a (0001) surface, it would be obvious to do so.

10. With respect to claim 10, the emission from the GaN device would be monochromatic.

11. With respect to claims 11 - 14, layers 18, 14 and 16 are first type, active and second type layers and there is a single metal layer. Note the above comments with respect to process limitations.

Response to Arguments

12. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (703) 308-4949. The examiner can normally be reached on M-F (6:15-2:45).

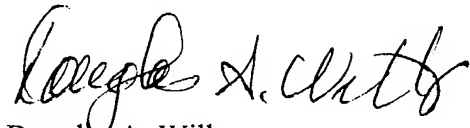
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read "Douglas A. Wille". The signature is fluid and cursive, with the first name "Douglas" being more prominent and the last name "Wille" following in a similar style.

Douglas A. Wille
Primary Examiner

October 16, 2003